

PATENT SPECIFICATION

DRAWINGS ATTACHED

Inventor: LENNART O. PIHL

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COMPLETE SPECIFICATION

Method of Sealing a Container

We, AB BONNIERFORETAGEN, a Swedish Corporate Body, of Regeringsgatan 50, Stockholm C, Sweden, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a method of sealing an open end of a container, and to a container produced by the method.

According to the invention, there is provided a method of sealing an open end of a container, the inner surface of which has a lining of a plastics material, by means of a lid having a rim portion shaped to fit closely within a portion of said inner surface in the region of an end surface of the container and to fit closely said end surface, comprising the steps of assembling the lid on the container with a layer of plastics material interposed between the rim portion and the container so that the layer is urged toward said end surface and abuts the container lining at said region, and heat sealing together abutting areas of the layer and lining.

Features and advantages of the invention will be apparent from the following description of some embodiment thereof given, by way of example, in conjunction with the accompanying drawings, wherein:

Figure 1 shows a step in the method according to the invention;

Figure 1a shows a modified form of container, and

Figure 2 shows a modified form of container and lid.

The container comprises a tubular body 1 made of paper, cardboard or some other strong material capable of resisting the inner pressure in the container. To ensure against the least possible permeability to carbon di-

oxide the internal and/or external surface of the paper body can be provided with a layer of metal foil. The external surface of the container is provided with a liquid permeable covering 2, e.g. made of plastics sheet material, which may cover the outer face of the container completely. The inner surface of the container is provided with a lining 3 of a plastics material in the form of an inner hose or bag or the like, which is open at one or both ends. The top portion of the lining 3, see Figure 1, projects beyond the edge of the container 1 so that the projecting portion 3a can be folded around the end surface 1a of the container. A lid 4 made, for instance, of sheet metal (or plastics), is lined on its inner surface with a layer of plastics material and has a rim portion 4a, 4b intended to fit closely the end face 1a of the container and to closely fit within a portion of the inner surface of the container in the region of surface 1a.

The lid is assembled on the container with the layer of plastics material abutting the lining 3a at end surface 1a and the lining 3 in the region adjacent the surface 1a. The portions 4a and 4b respectively thus clamp the plastics portion 3a against the outer covering 2 and the lid layer against the containing lining 3 so that a good seal is obtained.

In this arrangement, the contents of the container are completely enclosed in a fully sealed plastics casing.

To further improve the seal, abutting areas between the lining 3 and the lid layer are heat sealed together. The temperature applied depends on the type of plastics material used but in most cases lies in the range of 100—150° C.

The heat treatment can, for instance, be effected by means of electric high frequency

heating of the rim portion of the lid in order to effect a rapid sealing without substantially heating the contents of the container. The frequency range of the high frequency current may for example be from 80 kcs to 5 Mcs when the lid is made of sheet metal, such frequency range merely causing inductive heating of the sheet metal. By heating portion 4a and 4b of the lid a sufficient amount of heat will be generated to seal the plastics layer and lining. The high frequency heating may be effected by means of electrodes, which are positioned on both sides of the rim portion and rotating the can or the electrodes through one revolution. When sealing is effected by means of high frequency electrodes care should be taken to avoid heating the contents of the can, and the disadvantages resulting therefrom.

As can be seen from Fig. 1a the top edge of the inner lining 3 may terminate approximately flush with the opening of the container, and the top portion of the container and the lining can be folded outwards to form a flange 6 providing a curved end surface for the container, after which the lid 4 is pressed on and sealed in the manner previously described.

A lid is mounted and sealed, in a similar manner, on the opposite end of the container, if this end has not previously been closed.

The container may be of any height. The Figures only show a fragment of the container and it is assumed that the bottom portion of the said container is sealed in a manner to that applied when sealing its top portion.

The liquid container shown in the Figures suitably has a circular cross section but, naturally, may also have another shape. The container, for instance, may have cylindrical conical, frusto-conical or some other shape. If a frusto-conical shape is used it is expedient to provide the lid 4, attached at the narrow end of the container, with a flange so designed that the container can stand firmly on a surface with its narrow portion facing downwards. In this way the container is similar to a common drinking glass. The

frusto-conical shape is advantageous since the empty containers can be stacked inside one another and thus facilitate transport and storage of the same.

In Figure 2, a disc 5 of synthetic resin is arranged between the inside of the lid 4 and the top edge of the container 1. When the lid is pressed securely over the opening of the container the plastics disc 5 is clamped between the rim portion of the lid and the inner lining 3, and the outer edge portion of the plastics disc is folded around the edge of the container at the same time as the head member is secured. Sealing is effected in the manner described above.

If desired the disc 5 can be secured to the inside of the lid from the very beginning.

The invention is naturally not restricted to the embodiments now described and shown by way of the example but may be modified arbitrarily within the scope of the following claims.

WHAT WE CLAIM IS:—

1. A method of sealing an open end of a container, the inner surface of which has a lining of a plastics material, by means of a lid having a rim portion shaped to fit closely within a portion of said inner surface in the region of an end surface of the container and to fit closely said end surface, comprising the steps of assembling the lid on the container with a layer of plastics material interposed between the rim portion and the container so that the layer is urged toward said end surface and abuts the container lining at said region, and heat sealing together abutting areas of the layer and lining.

2. A method according to claim 1, wherein said lining also covers said end surface and is abutted by said layer.

3. A method of sealing an open end of a container, substantially as herein described with reference to the accompanying drawings.

4. A container when sealed by the method according to any one of the preceding claims.

A. A. THORNTON & CO.,
Chartered Patent Agents,
Northumberland House,

303/306 High Holborn, London, W.C.1.

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COMPLETE SPECIFICATION

1 SHEET

*This drawing is a reproduction of
the Original on a reduced scale*

